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**THE ROLE
OF RAILROADS
IN HAULING
FARM PRODUCTS**

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THE ROLE OF RAILROADS IN HAULING FARM PRODUCTS^{1/}

Transportation is an essential link joining the farmer with the distributor and, in turn, with the consumer. With expanding population, increasing production, and shifting production areas and markets, the transportation requirements of the Nation are changing. These changes are bringing significant changes in the roles of the various modes of transportation in delivering farm products.

Total Intercity Freight Traffic

Solid statistics are not available to measure the trend of farm-originated freight tonnage moved by highways, waterways, and airways; but acceptable estimates have been made of total ton-miles of all intercity freight traffic moved by each type of carrier.

Except for sharp changes during periods of general business fluctuations, total freight traffic moved by the railroads has not shown any clear-cut trends since 1947, whereas freight moved over the Nation's highways, waterways, and airways, as well as through pipelines, has increased steadily (table 12). Railroad traffic in 1962 was 10 percent lower than in 1947 and 20 percent lower than in 1944, but there have been several good years since World War II. Intercity highway traffic in 1962 was more than 3 times the volume in 1947. Waterway and pipeline volumes also increased but at a lower rate. Air freight rose during 1947-62, but the aggregate amount is still relatively small.

The share of total intercity traffic moving by rail has declined steadily. In 1947 it was 65 percent; in 1962 it was 43 percent. Highway traffic gained steadily from 10 percent of the total in 1947 to 24 percent in 1962. Inland waterways and pipelines have maintained their relative positions during the last few years. In the recent past each has hauled about one-sixth of all intercity

traffic. In terms of the share of total traffic, air freight is insignificant.

The statistics in table 12 highlight the fact that in terms of aggregate ton-miles, railroads have about held their own since 1950. From the railroads' point of view, this stability since 1950 is very unsatisfactory. Technological improvements since World War II have placed railroads in a position to haul much more traffic than they are attracting. Diesel power rather than steam enables them to match motive power to the needs of each train and operate longer, faster trains with more freight in each train. Centralized traffic control permits the safer operations of more trains on a given length of track within given time periods. Automated switching speeds the movement of cars through classification yards. Larger cars, and those designed for particular types of traffic, give railroads more freight in each loaded car. For these and many other reasons, they would like much more traffic than they have.

To get additional traffic, railroads want greater opportunity to reduce their freight rates to reflect cost-saving improvements and to meet the competition of highway, waterway, and pipeline carriers. Their rate-making flexibility is limited now because all their rates are subject to review by the Interstate Commerce Commission or by State regulatory agencies.

Agriculture's Importance to the Railroads

Farm product traffic is important to the railroads. In 1961 it was the source of 14 percent of all their carload freight and 17 percent of their revenues (tables 13 and 14). Perhaps even more important to them is the fact that agricultural traffic is one of their best hedges against business depression.

In recent times when industrial production and nonfarm rail traffic have

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Table 12.--Estimated ton-miles of intercity freight traffic, public and private, by transport agency, 1939-62

Year	Railway	Motor vehicles	Inland waterways	Pipelines	Airways	Total <u>1/</u>
	<u>Billions</u>	<u>Billions</u>	<u>Billions</u>	<u>Billions</u>	<u>Billions</u>	<u>Billions</u>
1939	339	53	96	56	0.012	544
1940	379	62	118	59	.014	619
1941	482	81	140	68	.019	772
1942	645	60	149	75	.034	929
1943	735	57	142	98	.053	1,031
1944	747	58	150	133	.071	1,088
1945	691	67	143	127	.091	1,027
1946	602	82	124	96	.093	904
1947	665	102	147	105	.158	1,019
1948	647	116	162	120	.223	1,045
1949	535	127	139	115	.235	916
1950	597	173	163	129	.318	1,063
1951	655	188	182	152	.379	1,178
1952	623	195	168	158	.415	1,144
1953	614	217	202	170	.413	1,204
1954	557	213	174	179	.397	1,123
1955	631	223	217	203	.481	1,275
1956	656	249	220	230	.563	1,355
1957	626	254	232	223	.572	1,335
1958	559	256	189	211	.579	1,215
1959	582	289	197	227	.739	1,295
1960	579	298	220	229	.778	1,326
1961	570	305	210	233	.895	1,318
1962	600	332	220	242	1.050	1,395

1/ Totals do not always add because of rounding.

Annual reports of the Interstate Commerce Commission.

dropped sharply, farm product traffic has declined moderately. For example, in the depressed year 1949, nonfarm product traffic was 21 percent below 1947 (table 13). Farm product traffic was down only 12 percent. Likewise, in 1961 when nonfarm product traffic was 23 percent below the 1947 level, farm product traffic was down only 8 percent.

In terms of revenues collected by the railroads, nonfarm traffic has been more remunerative than farm traffic. In 1961, rail revenue from nonfarm traffic was 46 percent above 1947, whereas rail revenue from farm traffic was only 2 percent

greater (table 14). Rail revenue from hauling farm products constituted 16-19 percent of total rail freight revenue in 1947-61, except for 1947 when it was 23 percent and 1949 when it was 20 percent. These figures show that farm products are responsible for a substantial share of the railroad business.

Railroad Transportation of Unmanufactured Farm Products

In 1961 the Nation's railroads picked up for delivery more than 163 million tons of unmanufactured farm products

Table 13.--Rail freight tonnage, farm output, and industrial production, 1947-61

Year	Farm product traffic <u>1/</u>		Farm output <u>2/</u>	All carload traffic except farm products <u>3/</u>		Industrial production <u>4/</u>
	Actual	Index		Actual	Index	
	1,000 tons	1947=100	1947=100	1,000 tons	1947=100	1947=100
1947	177,884	100	100	1,337,101	100	100
1948	162,041	91	109	1,326,571	99	104
1949	155,667	88	107	1,058,244	79	99
1950	143,496	81	106	1,199,813	90	114
1951	155,172	87	110	1,311,851	98	124
1952	153,018	86	114	1,220,276	91	128
1953	144,305	81	115	1,231,141	92	139
1954	144,864	81	115	1,072,141	80	131
1955	146,951	83	119	1,242,395	93	147
1956	151,291	85	120	1,289,646	96	153
1957	148,692	84	117	1,226,192	92	154
1958	156,641	88	126	1,029,310	77	142
1959	155,526	87	127	1,072,752	80	161
1960	159,813	90	131	1,077,627	81	166
1961	163,160	92	132	1,027,994	77	167

1/ Freight Commodity Statistics, Interstate Commerce Commission. Does not include manufactured and canned items.

2/ Gross production of livestock and crops.

3/ Freight Commodity Statistics, Interstate Commerce Commission. Includes all carload freight traffic except categories entitled, "Products of Agriculture" and "Animals and Animal Products."

4/ Federal Reserve Board index of quantity output.

(table 13). This figure does not include processed items such as animal feed, and manufactured items such as canned goods. Neither does it include farm supplies such as machinery and fertilizer. Assuming that each loaded rail freight car carried 40 tons of farm products, 163 million tons amounts to almost 11,000 carloads each day of the year or more than 160 trainloads of 70 cars each day.

Aggregate rail traffic in unmanufactured farm products has been notably steady since the rapid downward adjustment immediately after World War II. Rail tonnage of farm products moved in 1961 was 92 percent of the 1947 total and the largest amount in any year since 1947. The low points -- 81 percent of the 1947 total -- were in 1950, 1953, and 1954.

Despite this stability in aggregate volumes hauled, railroads do not have a particularly good record in relation to the growth of farm output. Farm output has increased steadily since 1947. Output in 1961 was 32 percent above 1947 (table 13). At the same time, rail traffic in farm products in 1961 was about 8 percent below 1947.

Farm product traffic declined significantly, but rail freight traffic in all nonfarm products declined even more. Loss of nonfarm traffic has been due, in substantial part, to the decreased volume of coal hauled, and to the shift of petroleum to pipelines. Nonfarm traffic in 1961 was 23 percent below 1947, and the trend is downward rather than stable as in the case of farm product traffic (table

Table 14.--Rail freight revenue, cash receipts from farm marketings, and gross national product, 1947-61

Year	Revenue from farm products		Cash receipts from farm marketings	Revenue from all carload traffic, except farm products		Gross national product
	Actual	Index		Actual	Index	
	1,000 dollars	1947=100	1947=100	1,000 dollars	1947=100	1947=100
1947	1,356,579	100	100	4,530,211	100	100
1948	1,416,385	104	102	6,411,411	142	111
1949	1,424,334	105	94	5,561,376	123	110
1950	1,330,432	98	96	6,462,285	143	121
1951	1,442,019	106	111	7,231,385	160	140
1952	1,526,498	113	110	7,308,198	161	148
1953	1,491,930	110	105	7,539,413	166	156
1954	1,441,952	106	101	6,448,336	142	155
1955	1,427,894	105	100	7,229,582	160	170
1956	1,486,617	110	103	7,618,293	168	179
1957	1,478,948	109	101	7,640,719	169	189
1958	1,532,884	113	113	6,724,311	148	190
1959	1,469,630	108	113	7,050,432	156	206
1960	1,421,622	105	115	6,827,173	151	215
1961	1,389,341	102	119	6,599,527	146	221

13). Furthermore, industrial production increased 67 percent over the 15-year period ended in 1961.

Rail Traffic Trends in Grains, Feeds, and Canned Goods

Railroads continue to haul large quantities of some farm products and revenues received for hauling these products continue to rise in most instances. Over the last 15 years, rail tonnage of 12 items, including grains, grain products, animal feeds, cotton, and canned goods, has accounted for about 10 percent of all rail traffic and revenues (table 15). In fact, the share of the railroads' business derived from hauling these commodities rose to about 13 percent in 1961. Wheat and corn, by far the largest moving grains, have regularly made up about 4 percent of all rail business. Animal feeds, canned goods, sugar beets, and wheat flour also have moved in heavy volume.

In 1961, 9 of the 12 items in table 15 moved in volume equal to or greater than in 1947. Only 3 declined. Those that declined were wheat flour, mill products (cereal), barley and rye. Revenues for moving these commodities were higher in every case in 1961 than in 1947, except for mill products (table 16).

Some items move longer average distances now than in the earlier years, but not all. Average haul per ton of cotton was 679 miles in 1961. In 1947 the haul was 592 miles. For sorghum grains, it was 437 miles in 1961 and 524 miles in 1947. In 1961, wheat moved 336 miles and wheat flour 610 miles. These distances have held notably constant. Since rail freight rates for moving grain are designed to hold that traffic to the rails even after it has been converted to flour, cereal, or other products, the total distance wheat and wheat products move, on the average, approaches 950 miles. It is this long haul that makes wheat traffic

Table 15.--Railroad traffic volume of 12 semiperishable and processed classes of farm products moved in large volumes, selected years

Farm products	1947	1950	1955	1960	1961
	1,000	1,000	1,000	1,000	1,000
	tons	tons	tons	tons	tons
Wheat	43,058	30,532	33,188	40,360	43,174
Corn	21,530	17,634	19,828	21,590	25,108
Animal and poultry feed	12,503	15,788	17,184	15,800	15,996
Food products in cans and packages (not frozen)	12,029	10,244	11,117	12,460	13,155
Sugar beets	8,502	7,812	7,376	9,888	10,335
Wheat flour	13,010	9,066	9,007	10,099	10,170
Soybeans	4,386	5,370	7,509	8,940	8,661
Sorghum grains	2,245	4,459	3,873	9,638	7,277
Soybean oil, cake, and meal	3,073	3,745	4,270	6,126	6,338
Mill products, cereal, etc.	9,878	6,663	5,701	5,860	5,875
Barley and rye	6,257	5,176	6,860	6,485	5,860
Cotton in bales	3,863	4,662	3,762	4,236	4,077
Total	140,334	121,151	129,675	151,482	156,026
Total carload traffic	1,514,985	1,343,309	1,389,346	1,237,440	1,191,154
	Percent	Percent	Percent	Percent	Percent
Volume of 12 products as percentage of total carload traffic	9.3	9.0	9.3	12.2	13.1

Freight Commodity Statistics, Interstate Commerce Commission

particularly attractive. The combination of hauls gives the railroads virtually the total transportation from country rail loading points near farms to the unloading of flour and cereals in destination cities near consumption points. Lowered rates in recent years have made the railroads even more attractive to wheat shippers.

Soybeans, soybean oil, soybean cake, and meal moved shorter distances. These together averaged 550 miles in 1961. Sugar beets, which normally move quite short distances, had an average haul of 69 miles in 1961, even fewer than in 1947.

Larger cars and lower rates offered shippers for heavier loads caused the average load per car of most commodities to rise. For example, the average load for wheat was 52 tons in 1947, 56 tons in 1961. In 1947, the average carload of soybeans was 49 tons; in 1961, it was 54 tons.

Rail Traffic Trends in 12 Perishable Farm Products

In contrast to the uptrends in rail volume of grain and grain products, rail traffic in

Table 16.--Railroad revenue of 12 semiperishable and processed classes of farm products moved in large volumes, selected years

Farm products	1947	1950	1955	1960	1961
	Thousand dollars	Thousand dollars	Thousand dollars	Thousand dollars	Thousand dollars
Wheat	212,285	178,933	204,017	264,232	268,327
Food products in cans and packages (not frozen)	154,888	167,736	188,583	217,121	227,164
Corn	95,294	95,274	107,668	105,631	131,485
Animal and poultry feed	51,197	79,549	88,383	85,339	85,513
Wheat flour	66,034	62,155	66,728	81,110	79,399
Cotton in bales	39,068	57,840	55,682	56,773	55,615
Sorghum grains	14,213	29,335	21,490	57,819	42,007
Barley and rye	31,002	30,424	44,986	48,066	38,393
Mill products NOS	37,464	32,206	30,545	34,451	33,499
Soybeans	13,902	22,242	37,570	35,499	30,944
Soybean oil, cake, and meal	12,690	19,622	26,321	29,887	29,448
Sugar beets	7,516	8,115	9,613	13,302	14,585
Total	735,553	783,431	881,586	1,029,230	1,036,379
Total freight revenue	5,886,790	7,792,717	8,657,476	8,248,795	7,988,868
Revenue of 12 products as percentage of total freight revenue	12.5	10.1	10.2	12.5	13.0

Freight Commodity Statistics, Interstate Commerce Commission

highly perishable farm products has declined sharply during the last 15 years, in some cases almost to the vanishing point. For the 12 commodity classes in table 17, rail tonnage in 1961 was only 43 percent of the tonnage in 1947. The best showing was for tomatoes, which held in 1961 to 77 percent of the 1947 volume. Eggs and fresh berries almost disappeared from the rails. (However, the railroads have largely offset this loss of berries through gains in frozen berry and fruit traffic.) Volumes for 8 of the 12 classes of commodities declined by 50 percent or more in 1947-61.

Revenues collected by the railroads for hauling this traffic also declined, but by a somewhat smaller percentage, 32 percent. For 5 commodity classes, revenues in 1961 were 50 percent or less of the amounts collected in 1947. These 5 items were oranges and grapefruit, fresh apples, watermelons, eggs, and fresh berries (table 18). Part of the decline may be traced to the railroads lowering their charges in an effort to retain traffic. For example, ton-mile charges for moving potatoes and oranges and grapefruit declined from 1955 to 1961. Other charges held steady or increased only moderately.

Table 18.--Rail revenue of 12 classes of perishable farm products, selected years

Farm products	1947	1950	1955	1960	1961
	Thousand dollars	Thousand dollars	Thousand dollars	Thousand dollars	Thousand dollars
Meats, fresh NOS, cooked, cured, dried, and smoked and packinghouse products	113,266	131,898	138,017	112,160	106,087
Potatoes, other than sweet	77,013	75,663	76,648	71,640	69,579
Cattle and calves	52,778	44,076	51,812	37,885	32,445
Oranges and grapefruit	75,802	45,803	41,114	27,960	25,240
Swine	19,619	22,647	23,346	13,795	11,985
Sheep and goats	9,628	8,851	9,582	8,290	7,546
Tomatoes	12,409	11,203	11,548	10,248	9,304
Apples, fresh (not frozen)	22,768	20,250	15,107	10,750	8,746
Poultry, live and dressed	9,442	6,095	2,976	3,782	4,926
Watermelons	7,055	7,090	8,855	3,898	2,912
Eggs	10,585	1,471	369	100	83
Berries, fresh (not frozen)	241	87	50	39	18
Total	410,606	375,134	379,424	300,547	278,871
Total freight revenue	6,386,790	7,792,717	8,657,476	8,248,795	7,988,868
Revenue of 12 products as percentage of total freight revenue	6.0	4.8	4.4	3.6	3.5

Freight Commodity Statistics, Interstate Commerce Commission

The index of railroad freight rates for farm products, published by the Economic Research Service, reflects the effects of the factors described (table 5, p.13). The combined index for several farm products declined in 1962 for the fourth consecutive year. The index dropped 2 points from 1958 to 1959, 2 points from 1959 to 1960, and 1 point in 1961 and 1962. Prior to 1958, the index was rising, particularly after World War II. Although the most influential force on the combined index

was the decline in wheat rates, declines also occurred in livestock, meats, fruits, and vegetables.

Competition for the Railroads

Railroads have not kept pace with other carriers in acquiring the potential new traffic generated by rising agricultural output. It is virtually impossible to measure the potential agricultural traffic

Table 17.--Railroad traffic volume of 12 perishable farm products, selected years

Farm products	1947	1950	1955	1960	1961
	1,000 tons	1,000 tons	1,000 tons	1,000 tons	1,000 tons
Meats, fresh NOS, cooked, cured, dried, and smoked and packing- house products	5,933	5,081	4,618	3,639	3,676
Potatoes, other than sweet	5,925	4,376	3,711	3,400	3,385
Cattle and calves	5,156	3,083	2,888	1,760	1,535
Oranges and grapefruit	3,182	1,473	1,321	826	761
Swine	2,070	1,487	1,043	534	459
Sheep and goats	891	607	519	359	320
Tomatoes	332	278	283	198	256
Apples, fresh	944	672	457	286	228
Poultry, live and dressed	367	169	84	135	199
Watermelons	401	284	334	100	78
Eggs	424	49	11	3	4
Berries, fresh (not frozen)	9	3	1	1	1
Total	25,634	17,562	15,270	11,241	10,902
Total carload traffic	1,514,985	1,343,309	1,389,346	1,237,440	1,191,154
	Percent	Percent	Percent	Percent	Percent
Volume of 12 products as percentage of total carload traffic	1.7	1.3	1.1	0.9	0.9

Freight Commodity Statistics, Interstate Commerce Commission

Ton-mile charges for fresh apples and watermelons were comparable to 1955, while those for tomatoes were about the same in 1961 as in 1947, declining after reaching a peak in 1955. The decline in revenue despite the railroads' efforts reflects the importance of the service advantage held by highway carriers.

The relatively favorable charges applicable to these perishable commodities as compared to earlier years result partly from an increase in the average distance

each ton is hauled. Rail freight rates tend to rise at a decreasing rate as distances increase. Among examples of changes in average hauls is that for fresh apples, which increased from 1,658 miles in 1947 to 2,178 in 1961. In 1947 watermelons moved an average of 925 miles; in 1961, the average distance was 1,177 miles. The average haul per ton for potatoes increased from 913 miles to 1,263 in 1961. The average haul for tomatoes held steady at around 1,600 miles.

lost by the railroads to other carriers. Motortrucks and barges -- significant haulers of farm products -- are exempt from Federal regulation governing charges and routing for interstate movements. At the same time most States permit for-hire motortrucks to carry farm commodities intrastate with a considerable degree of economic freedom. Thus, carriers operating in these areas do not submit the transportation activity reports that would provide the statistical data needed for such a measurement.

USDA's transportation research findings do show, however, that motortrucks move large quantities of perishable and semiperishable farm products. ^{2/} The commodity groupings most commonly trucked in large volume are grain, livestock, milk and cream, vegetables, fruits and berries, poultry and eggs, cotton and wool, and hay and forage. Barges also move quantities of grain over inland waterways at very competitive rates.

Total tonnage of grain moved by rail has increased in recent years. This reflects increased grain production and the railroads' power to hold longhaul traffic in areas where truckers do not have an opportunity to get payloads both outbound and homebound, thus making grain movements one-half of roundtrip operations. It also reflects the effect of rate reductions by railroads. In addition, water carriers, even in combination with motortrucks, cannot serve all origins and destinations that rails can.

The average distances railroads haul grain have increased, but this statistical increase has been partly the effect of the loss of short-haul traffic and partly the effect of heavier movements from inland grain-producing States to export points.

Motortrucks haul significant volumes of grain. This grain often moves as one-half of a roundtrip payload, sometimes at rates more attractive to shippers than rail rates. The service advantages offered by the truckers cannot be matched by the railroads or water carriers. The end result is that farmers indirectly benefit from the flexibility of the trucks by saving expenses of hauling their grain to elevators or other concentration points. Buyers may also benefit by having grain delivered to them in small lots and by having to pay no more for delivered grain than for grain accepted at the rail unloading point.

The service advantages in transporting grain by truck are even more important in moving perishable farm products such as fruits, berries, vegetables, dairy products, and poultry. Motortruckers can stop at two or three points to pick up perishables destined for a distant market, and delivery can be made to 2 or more points. This service cannot be equalled by the railroads; those who want it are often willing to pay motortruckers premium rates for the service. Also, truck transportation often is faster and more reliable than movement by rail.

Summary

The volume of farm products hauled by the Nation's railroads has held about constant since 1947. Revenues for hauling farm products generally increased until about 5 years ago. Since then they have declined. This record of stable traffic volume and declining revenues in the last 5 years results from many causes. The chief depressing factor on rail revenues has been the sharp reductions in rail freight rates where competition from truck and barge transportation has been keen.

^{2/} Mildred R. DeWolfe, For-Hire Motor Carriers Hauling Exempt Agricultural Commodities . . . Nature and Extent of Operations, USDA, Mktg. Res. Rpt. 585, Jan 1963.

